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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/698,539	10/27/2000	Guy Reina	3391/OG232	5027
7590	12/17/2004		EXAMINER	
Darby & Darby PC 805 Third Avenue New York, NY 10022			BLOUNT, STEVEN	
			ART UNIT	PAPER NUMBER
			2661	

DATE MAILED: 12/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>
	09/698,539	REINA, GUY
	<b>Examiner</b>	<b>Art Unit</b>
	Steven Blount	2661

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

**A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.**

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) Responsive to communication(s) filed on 20 July 2004.  
 2a) This action is **FINAL**.                    2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) Claim(s) 1 - 11 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 1 - 9 is/are rejected.  
 7) Claim(s) 2, 10, and 11 is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
|  | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Claim Objections***

1. Claims 2 and 10 are objected to because of the following informalities:

In claim 2, the period that is underlined should be removed and a bracket should enclose the comma, so that the phrase “interface;.” reads “interface.”

In claim 10, the line over the period should be removed, and brackets should enclose the period instead so that it is properly removed (see line 27).

Claim 11 is objected to because it is dependent upon objected to claim 2.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 2, and 4 – 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicants Admitted Prior Art (hereinafter AAPA) in view of U.S. patent 5,117,418 to Chaffee et al and U.S. patent 6,252,902 to Simeon et al and either one of (U.S. patent 4,074,086 to Falconer et al **or** U.S. patent 5,136,576 to Brownlie) .

With regard to claim 1, AAPA teaches in figure 2 a method of calculating echo canceling coefficients to be used by an echo cancellation filter, wherein constellation encoder 16 generates a first signal; generating an echo signal based on coefficients (see 10); receiving a second signal 25; and subtraction at 14; and applying an FFT and doing serial to parallel at 28/26.

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AAPA does not, however, teach calculating the EC coefficients based on "said transformed echo-cancelled signal", or the first signal to be a wide-band cyclic sequence, or providing at least one control signal to control timing of transmission so that calculating the echo canceling coefficients is performed on predesignated signals.

Chaffee et al teaches, for use in a modem (col 5 lines 10+), generating an echo signal at point 16 through the combination of an original signal from 10 and a plurality of EC coefficients through the input from member 20 (see figure 1) in an overall echo cancellation unit of similar construction to AAPA, wherein the EC coefficients at 20 are calculated based on a signal which has been transformed by an FFT at 22. Note that member 18 (Chaffee, col 6, line 2) performs an IFFT, as does member 18 in figure 4 of the current application. Although a "wide-band" is not explicitly stated to be used, telephone channels which carry information from multiple modems (col 5 lines 10+) often operate in wideband, and one of ordinary skill in the art would, in addition to this, realize the applicability of operating the Chaffee et al in this manner.

Simeon et al teaches training a device (modem) through the use of a cyclical sequence. See col 4, lines 58+.

Falconer et al teach the use of a control signal to control timing of transmission: "timing source 45 controls data source 31 and the input to echo canceller 34" (col 5, lines 37+, emphasis added).

Brownlie teaches such a control signal as well. See figure 1A, and note that the signal leaving the transmitter is branched directly to the echo cancellation unit 14.

It would have been obvious to one of ordinary skill in the art at the time of the invention to have fed the FFT/serial-parallel information produced from an original wide band cyclic signal of AAPA to its EC coefficient estimation generator, and to have provided transmission control, in light of the teachings of Simeon et al and Chaffee et al and either of Falconer et al or Brownlie, in order to be able to update the filter coefficients in an adaptive and efficient manner.

With regard to claim 2 note the discussion of members 18 (IFFT) above, and see also page 2 lines 1+ and lines 15+ of AAPA.

With regard to claim 4, see page 2, lines 1 and 15 of AAPA where FIR is mentioned.

With regard to claim 5, see page 2, line 20 of AAPA.

With regard to claim 6, "updating" the coefficients is mentioned throughout the Chaffee et al patent, including col 3 lines 35+ and this suggests very strongly an iterative process.

With regard to claim 7, see the discussion of correlation techniques in col 6 lines 35 to 55 of Chaffee et al.

With regard to claim 8, setting the length of the filter inherently sets the permitted number of cross-correlation coefficients; see also lines 35 to 55 of Chaffee as above.

4. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Applicants Admitted Prior Art in view of U.S. patent 5,117,418 to Chaffee et al and U.S. patent 6,252,902 to Simeon et al and either of U.S. patents (4,074,086 to Falconer et al

or U.S. patent 5,136,576 to Brownlie) as applied above to claim 1, and further in view of U.S. patent 6,101,864 to Abrams et al.

AAPA/Chaffee et al/Simeon/(Falconer or Brownlie) et al teach the invention as described above, but do not teach generating the signal through the use of a lookup table. This is taught in Abrams et al. See figure 2b. It would have been obvious to have AAPA/Chaffee et al/Simeon et al/(Falconer et al or Brownlie) use a lookup table to generate the signal in light of the teachings of Abrams et al in order to simplify the apparatus and provide a uniform value for the signal.

5. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Applicants Admitted Prior Art in view of U.S. patent 5,117,418 to Chaffee et al and U.S. patent 6,252,902 to Simeon et al and either of U.S. patents (4,074,086 to Falconer et al or U.S. patent 5,136,576 to Brownlie) as applied to claim 1 above, and further in view of U.S. patent 6,535,552 to Pessoa.

AAPA/Chaffee et al/Simeon/Falconer or Brownlie et al teach the invention as described above, but do not teach multiplying the filter coefficients by a window coefficient. This is taught in Pessoa. See col 4, lines 20+ and 60+. It would have been obvious to one of ordinary skill in the art at the time of the invention to have used the windowing technique taught in Pessoa in AAPA/Chaffee et al/Simeon et al in order to produce a more accurate signal.

6. Claim 11 would be allowable if the objection to claim 2 were corrected, and rewritten to incorporate the limitations of both claims 1 and 2.

Claim 10 would be allowable if the objection to this claim were corrected.

***Response to Arguments***

7. Applicant's arguments with respect to most of the claims have been considered but are moot in view of the new ground(s) of rejection. Applicants argument that with respect to claim 3, Abrams et al is nonanalogous art has been considered. However, Abrams deals with digital circuitry used in signal processing, as do the other references used in the rejections.
8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

9. Any response to this final action should be mailed to:

Box AF

Commissioner of Patents and Trademarks  
Washington, D.C. 20231

Or faxed to: (703) 872 – 9306

For formal communications, please mark “EXPEDITED PROCEDURE”.

For informal or draft communications, please label “PROPOSED” or  
“DRAFT”.

Any inquiry concerning this communication should be directed to Steven Blount whose telephone number is (571) 272 – 3071. Examiner Blount may be reached Monday through Friday between the hours of 9:00 to 5:30. If attempts to reach the Examiner are unsuccessful, the Examiner’s Supervisor, Kenneth Vanderpuye, may be reached at (571) 272 – 3078.

*~Bh*  
Ajit Patel  
Primary Examiner

SB

12/7/04